eliciting opsonophagocytic activity and/or in vivo immunisation and/or in vivo immune protection against *S. pneumoniae*.

B8 cont

REMARKS

Due to a clerical error, the Preliminary Amendment dated February 12, 2002 amended the claims as originally filed in the International application. Applicants were made aware that the claims were amended during the International Phase of the above-identified application. Therefore, Applicants have cancelled Claims 1-18 and added new Claims 19-37. New claims 19-37 correspond to the amended claims of the International Phase of the application with multiple dependencies removed and sequence ID. numbers added. No new matter has been added.

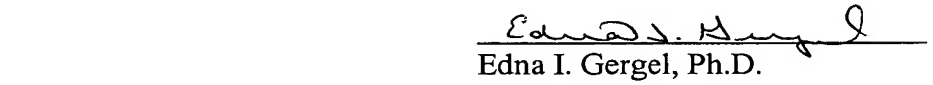
The SEQ. ID. NOS. corresponding to the unannotated sequences on pages 5, 9, 11, and 12 have been introduced into the specification. No new matter has been introduced by the amendments.

Pursuant to the Notice to File Missing Requirements under 35 U.S.C. § 37 in the U.S. designated/elected office, a disk containing the sequence listings in computer readable form (CRF) and a copy of the Sequence Listing are submitted herewith. The transmission cover sheet includes a signed statement of equivalence of the CRF on disk and the attached SEQUENCE LISTING as required in the Notice.

The sequences disclosed on pages 5, 9, 11, and 12 of the application as filed have been accorded SEQ. ID. NOs. as required in the Notice.

Agent for Applicant respectfully requests entry of the above amendment. If the Examiner has any questions regarding this amendment, the Examiner is respectfully requested to contact the undersigned agent at the telephone number set forth below.

Respectfully submitted,



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VERSION OF AMENDMENT WITH MARKS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Please replace the paragraph starting on page 5, line 3, with the following new paragraph:

One of the proteins revealed to be homologous to a polypeptide encoded by nucleotide sequence 7632-8597 on contig 33 of *S. pneumoniae* (Figure 1) (Seq. ID. No: 1 and SEQ. ID. NO: 2). This ORF was identical to ORF 414 of *S. pneumoniae* in the WIT-system. Details about the WIT system can be found on http://wit.mcs.anl.gov/ and on the website of The Institute for Genomic Research, Rockville USA updated on April 7, 1999.

Please replace the paragraph starting on page 5, line 8 with the following new paragraph:

Since this pneumococcal polypeptide was related to protease maturation protein *Lactobacillus paracasei* (Swiss Prot acc. nr. Q02473) (Figure 2) (SEQ. ID. NO: 3), and *Lactococcus lactis subspec. lactis* (Swiss Prot acc. nr. P15294) Figure 3) (SEQ. ID. NO: 4) and *Lactococcus lactis subsp. cremoris* (Swiss Prot acc. nr. P14308) (Figure 4) (SEQ. ID. NO: 5) it was designated the protease maturation protein (Pmp) of *S. pneumoniae*. Also the molecular weight of the protein cut from the acrylamide gel corresponds with the molecular weight of Pmp.

Please replace the paragraph starting on page 9, line 14 with the following new paragraph:

The invention provides for the use of homologous Pmp proteins or fragments thereof of other *S. pneumoniae* species with amino acid sequences or fragments thereof such as peptides that are functionally homologous to the sequence depicted in fig. 1B (SEQ. ID. NO: 2). Said functional homologous peptides can be used in a vaccine for the treatment, preferably the preventive treatment of a wide variety of strains and (sub)species of *S. pneumoniae*.

Please replace the paragraph starting on page 11, line 24 with the following new paragraph:

Figure 1: the *S. pneumoniae* nucleotides 820800-821738 on contig 3836 (http://www.tigr.org/data/*S.pneumoniae*/) (SEQ. ID. NO: 1) (A) and the encoding polypeptide sequence (SEQ. ID. NO: 2) (B) harbouring Pmp. The presumed methionine start codon of Pmp is depicted in bold and underscored.

Please replace the paragraph starting on page 12, line 1 with the following new paragraph:

Figure 2: The protease maturation protein of *Lactobacillus paracasei* (SEQ. ID. NO: 3) (Swiss Prot acc. nr. Q02473).

Please replace the paragraph starting on page 12, line 3 with the following new paragraph:

Figure 3: The protease maturation protein of *Lactococcus lactis subspec. lactis* (SEQ. ID. NO: 4) (Swiss Prot acc. nr. P15294).

Please replace the paragraph starting on page 12, line 5 with the following new paragraph:

Figure 4: The protease maturation protein of *Lactococcus lactis subsp. cremoris* (SEQ. ID. NO: 5) (Swiss Prot acc. nr. P14308).

IN THE CLAIMS:

Please cancel claims 1-18 and add the following new claims 19-37.

19. (New) A vaccine or medical preparation comprising a protease maturation protein of *S. pneumoniae* comprising an amino acid sequence as shown in fig. 1B (SEQ. ID. NO: 2) and/or a fragment thereof and/or a homologous and/or a functionally homologous protein or protein fragment thereof for the treatment of microbial infections.

20. (New) The vaccine or medical preparation according to claim 19 for the treatment of *S. pneumoniae*.

21. (New) The vaccine or medical preparation according to claim 19, further comprising a suitable adjuvant or carrier.

22. (New) The vaccine or medical preparation according to claim 19 wherein said protein is the protein maturation protein from *S. pneumoniae* Ft231 or EF3296.

23. (New) The vaccine or medical preparation according to claim 19 wherein said fragment comprises an anchoring fragment, an antigenic fragment or a functional equivalent thereof or a functional equivalent of a receptor binding site or an antibody binding site.

24. (New) The vaccine or medical preparation according to claim 19 wherein said protein or said fragment comprises a purified, recombinant or synthetic protein or fragment thereof.

25. (New) The vaccine or medical preparation according to claim 19 wherein said fragment comprises at least 8 amino acids.

26. (New) Method for preparation of a vaccine against *S. pneumoniae* comprising the steps of:

a. isolating a protease maturation protein of *S. pneumoniae* comprising an amino acid sequence as shown in fig. 1B (SEQ. ID. NO: 2), or a fragment thereof or a recombinant or synthetic protein or fragment thereof or homologous or functionally homologous protein or fragment thereof; and

b. combining the protein or the fragment thereof obtained under (a) with a suitable carrier or adjuvant.

27. (New) Method for obtaining an antibody against the protease maturation protein of *S. pneumoniae*, the method comprising the steps of isolating protease maturation protein comprising an amino acid sequence as shown in fig. 1B (SEQ. ID. NO: 2) or a fragment thereof and/or a homologous and/or a functionally homologous protein or protein fragment thereof, and raising antibodies against said protein or fragment thereof.

28. (New) Antibody comprising opsonophagocytic activity obtainable by the method according to claim 27.

29. (New) Use of a protease maturation protein of *S. pneumoniae* comprising an amino acid sequence as shown in fig. 1B (SEQ. ID. NO: 2), or a fragment thereof and/or a homologous and/or a functionally homologous protein or protein fragment thereof, for the preparation of a vaccine for the treatment or prophylaxis of a *S. pneumoniae* infection.

30. (New) Use of a protease maturation protein of *S. pneumoniae* comprising an amino acid sequence as shown in fig. 1B (SEQ. ID. NO: 2), or a fragment thereof or a recombinant or synthetic protein or fragment thereof as a carrier.

31. (New) Method of treatment of a *S. pneumoniae* infection comprising administering a vaccine according to claim 19.

32. (New) Method for the vaccination of a mammal against an infection of *S. pneumoniae* comprising administering a suitable dose of a vaccine according to claim 19.

33. (New) Use of a nucleic acid sequence coding for a protease maturation protein comprising an amino acid sequence as shown in fig. 1B (SEQ. ID. NO: 2), or a fragment thereof and/or a homologous and/or functionally homologous protein or protein fragment thereof, for obtaining a recombinant protease maturation protein or fragment thereof.

34. (New) Cell containing a recombinant nucleic acid sequence or a vector encoding for protease maturation protein comprising an amino acid sequence as shown in fig. 1B (SEQ. ID. NO: 2), or a fragment thereof and/or a homologous and/or a functionally homologous protein or protein fragment thereof.

35. (New) Recombinant protease maturation protein comprising an amino acid sequence as shown in fig. 1B (SEQ. ID. NO: 2), or fragment thereof and/or a homologous and/or a functionally homologous protein or protein fragment thereof, obtainable through the expression of a gene sequence encoding for said protein in a suitable vector.

36. (New) Use of a protease maturation protein of *S. pneumoniae* comprising an amino acid sequence shown in fig. 1B (SEQ. ID. NO: 2), and/or a fragment thereof and/or a homologous and/or a functionally homologous protein or protein fragment thereof for the preparation of a medicament for the treatment of diseases connected with *S. pneumoniae* infections.

37. (New) Use of protease maturation protein of *S. pneumoniae* comprising an amino acid sequence as shown in fig. 1B (SEQ. ID. NO: 2), and/or a fragment thereof and/or a homologous and/or a functionally homologous protein or protein fragment thereof for eliciting opsonophagocytic activity and/or in vivo immunisation and/or in vivo immune protection against *S. pneumoniae*.

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